Dishwasher
DW7933 series training
2012

Project : R3V-PJT

Dishwasher R&D Lab.

SAMSUNG Electronics
SAMSUNG DIGITall
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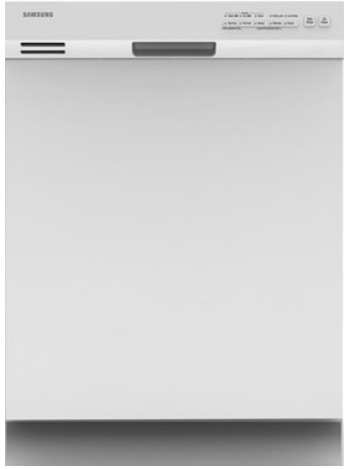
General Specification

DW7933LRASR

DW7933LRABB



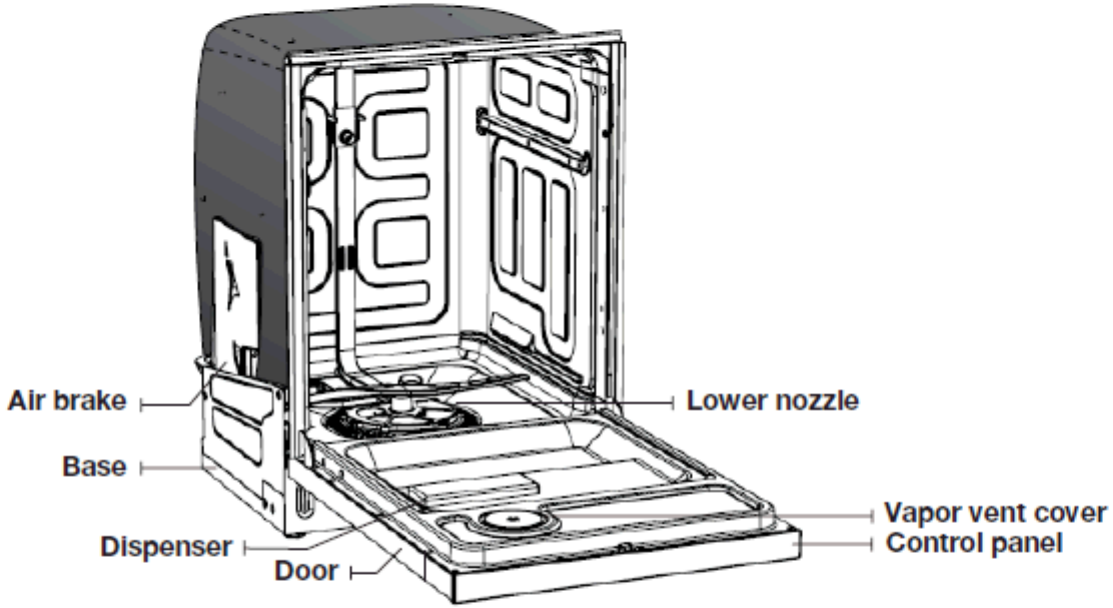
DW7933LRAWW

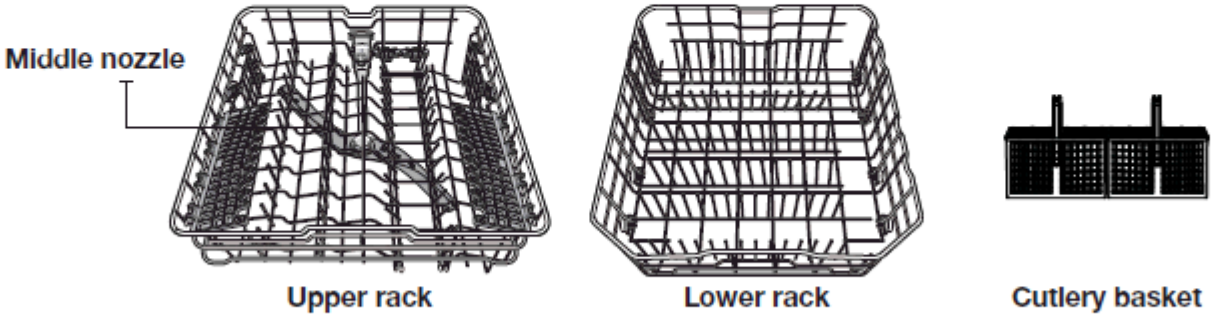
Main Features	▪ Capacity: 14 place settings ▪ Control panel design - Front control type + Tact operation. ▪ Dimension (W x D x H) : 23-7/8 x 24-3/4 x 33-7/8 inch (605 x 627 x 860 mm)
Sales Point	▪ Flexible Style : Inclined Rack System, Height adjustable Upper Basket(manual) ▪ Upgraded Kitchen : Pleasant kitchen environment, Simple & Modern design ▪ Smart Control : Soil sensing Programming, ABS door system

Dishwasher Features

Features	Description	Remarks
Extra large capacity	The upper rack is slanted for larger dishes. The space has been maximized to accommodate a variety of dish sizes.	
Increased convenience	The smart auto cycle determines the level of soil on the dishes and initiates the optimal cycle for cleaning. Use this feature to save water, energy, and time.	
Extremely quiet operation	Efficient noise control technology gives you the quietest possible operation. Your new Samsung dishwasher is quieter than ever.	
Self-cleaning filter	Cleaning the filter yourself is a thing of the past! This product keeps food waste internally while operating, then drains it automatically with the water.	

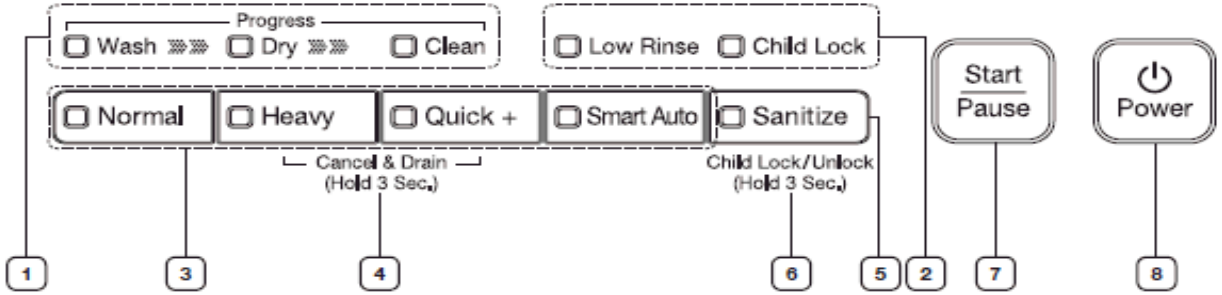
Dishwasher composition





* Accessory parts - User/Installation manual, Installation Kit, Nozzle Removal.

Control Panel – DW7933 series



1. PROGRESS LIGHT	Progress information (Wash, Dry, Clean) Each progress light corresponding to the current operation turns on to show the progress of the cycle.
2. DISPLAY	Displays information (Low Rinse, Child Lock). The “Low Rinse” light turns on when you need to refill the rinse aid agent and the “Child Lock” light turns on/off when you activate the Child Lock/Unlock.
3. CYCLE SELECTOR	Select the appropriate wash cycle depending on the soil level of your dishes. After you select a cycle, the Cycle On light for that cycle lights up. If you want to cancel the selected cycle, press the selected cycle button again. If an error occurs during an operation, an error message is illuminated with a warning sound. Refer to the “Information codes” on page 26.
4. CANCEL & DRAIN	To cancel a cycle currently running and drain the dishwasher, hold down both the Heavy and Quick + buttons for three (3) seconds.
5. SANITIZE	The temperature rises to 162 ˚F (72 ˚C) in the final rinse cycle for high temperature sanitization. If you select the Sanitize option, the “Sanitize” lamp blinks when the water temperature reaches the sanitary temperature (over 155 ˚F (68 ˚C)), and then remains illuminated until the Sanitze option ends. When you open the door or press Power button, the “Sanitize” lamp turns off. The cycle that is NSF certified is the Heavy Cycle with the sanitize option selected.
6. CHILD LOCK/UNLOCK	This option allows you to lock the buttons on the control panel so children cannot accidently start the dishwasher by pressing the buttons on the panel. To lock and unlock the buttons on the control panel, hold the Sanitize button down for three(3) seconds. - When Power is On : Hold down the Sanitize button for three (3) seconds. - When Power is Off : Push the Power button first, and then hold down the Sanitize button for three (3) seconds.
7. START/PAUSE	In Power on condition, close the dishwasher door and select the cycle and desired option. Press the Start/Pause button to begin the cycle. When you want to pause the dishwasher while running, press the Start/Pause button and make sure to open the door slowly and carefully.
8. POWER	When you press the Power button, the entire display turns on and off, and then the light of the most recently finished cycle lights up. When the cycle you selected has finished, all other indicator lights are turned off and the “Clean” light is illuminated for 10 minutes. Then, the Power turns off automatically.

Product Main Specification

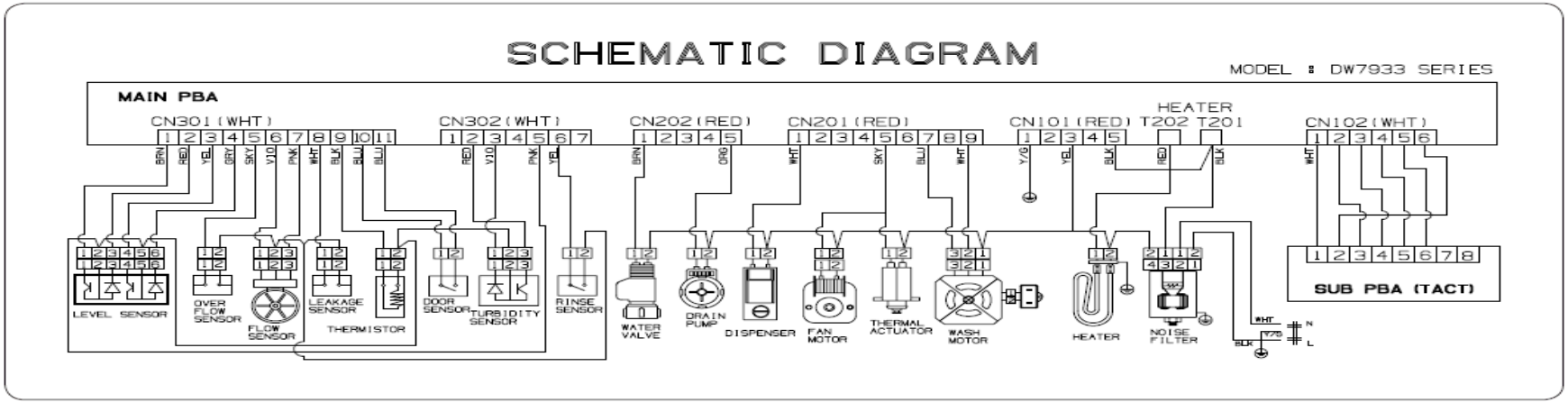
MODEL name	DW7933XXXXX
Power supply	Single-phased alternating current of 60Hz, 15A at 120V
Water pressure	140 ~ 830 kPa (20 ~ 120 psi)
Wash method	Rotating nozzle spray type
Dry method	Air Vent dry system
Power	Circulation Motor :190W/150W(2-step)±15% Heater : 1100W±10% Drain Pump : 45W±15% Fan Motor : 4.3W±15%
Water consumption	3.6~6.7 gallon (14~25L), Normal Cycle

Specification

Model	MODEL				NEW MODEL
	DMT800RHS/B/W	DMT610RHS/B/W	DMT400RHS/B/W	DMT350RFS	DW7933LRASR/ WW/BB
	Design Specifications				
Panel Control	Black	Black	Black	Silver	Silver/Black /White
Control Type	Touch	Touch	Touch	Touch	Button
Frame Front	STS/Black/White			STS	STS/Black/White
Basket Handle	Blue + STS	Blue + Gray			None
	Function Specifications				
Soil Detection Sensors	O	O	O	O	O
Drying method	Air diffusion condensing				Air vent
Basket Height Adjustment	One-touch		2-stage	2-stage	2-stage
Leakage Sensor	O	O	O	O	O
Programs	**6** (Normal, Heavy, Delicate, Pot & Pans, Quick+, Smart Auto)	**6** (Normal, Heavy, Delicate, Pot & Pans, Quick+, Smart Auto)	**4** (Normal, Heavy, Delicate, Quick)	**6** (Normal, Heavy, Delicate, Pot & Pans, Quick+, Smart Auto)	**4** (Normal, Heavy, Quick+, Smart Auto)
Options	**6** (Delay Start, Sanitize, Half Load, Storm Wash, Child Lock, Cancel & Drain)	**4** (Delay Start, Sanitize, Child Lock, Cancel & Drain)	**3** (Sanitize, Child Lock, Cancel & Drain)	**4** (Delay Start, Sanitize, Child Lock, Cancel & Drain)	**3** (Sanitize, Child Lock, Cancel & Drain)

Wiring Diagram

● *This Document cannot be used without Samsung's authorization.*



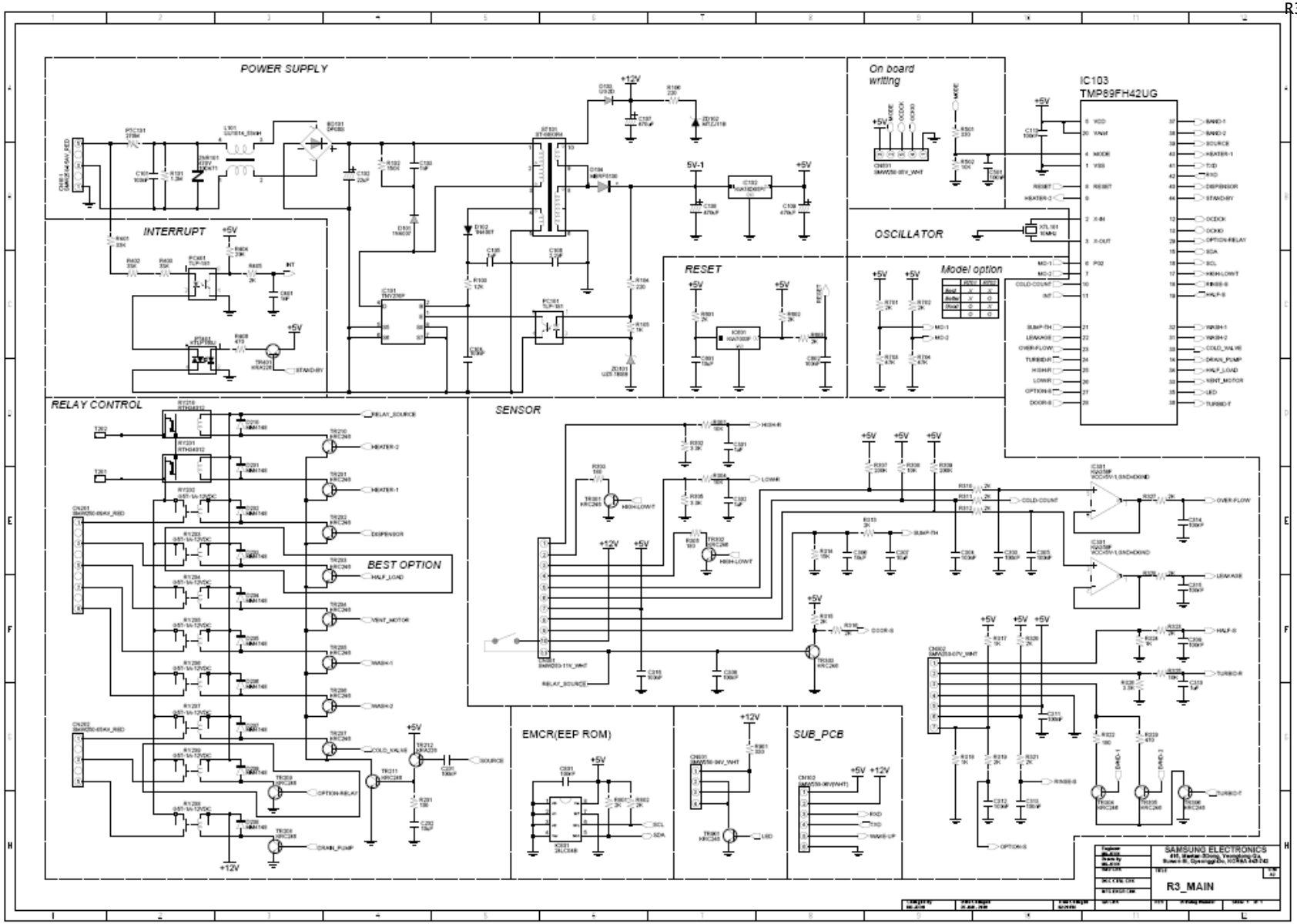
■ **Reference Information**

Abbreviated word	Meaning	Abbreviated word	Meaning
GRY	GRAY	BLK	BLACK
ORG	ORANGE	RED	RED
VIO	VIOLET	SKY	SKY BLUE
PNK	PINK	BLU	BLUE
YEL	YELLOW	Y/G	YELLOW / GREEN
BRN	BROWN	NTR	COLORLESS
WHT	WHITE		

Schematic diagram

● *This Document cannot be used without Samsung's authorization.*

R3-Main0PCB



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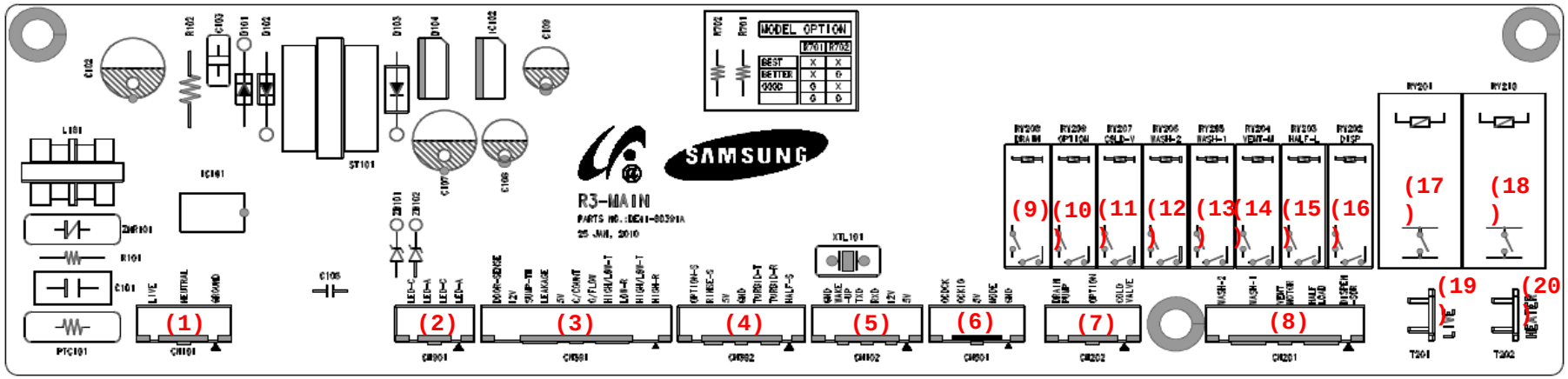
MAIN PBA



No.	Location	Description
1	CN101	MAIN PBA Power (120V)
2	CN901	NC
3	CN301	Sensing (refer to next page For details)
4	CN302	Sensing (refer to next page For details)
5	CN102	Micom writer connector
6	CN501	SUB PBA connector
7	CN202	Drain pump, Inlet valve
8	CN201	Wash Motor, Dry Fan Motor, Dispenser
9	RY208	Drain Pump Driving Relay
10	RY209	NC

No.	Location	Description
11	RY207	Inlet Valve Driving Relay
12	RY206	Wash Motor-2 (High) Driving Relay
13	RY205	Wash Motor-1 (Low) Driving Relay
14	RY204	Dry Fan Motor Driving Relay
15	RY203	NC
16	RY202	Dispenser Driving Relay
17	RY201	Heater-1 Driving Relay
18	RY210	Heater-2 Driving Relay
19	T201	Live conncetor
20	T202	Heater connector

PCB Diagram

CN101
1) GND
2) NC
3) NEUTRAL
4) NC
5) LIVE

CN301
1) HIGH-R
2) HIGH/LOW-T
3) LOW-R
4) HIGH/LOW-T
5) OVER FLOW
6) COLD COUNT
7) 5V
8) LEAKAGE
9) THERMISTOR
10) 12V
11) DOOR-SENSE

CN302
1) HALF LOAD SENSE
2) TURBIDITY-R
3) TURBIDITY-T
4) GND
5) 5V
6) RINSE-SENSE
7) OPTION-SENSE

CN102
1) 5V
2) 12V
3) RXD
4) TXD
5) WAKE-UP
6) GND

CN501
1) GND
2) MODE
3) 5V
4) OCKIO
5) OCDCK

CN202
1) COLD-VALVE
2) NC
3) OPTION
4) NC
5) DRAIN-PUMP

CN201
1) DISPENSER
2) NC
3) HALF LOAD (option)
4) NC
5) Dry Fan MOTOR
6) NC
7) WASH MOTOR -1
8) NC
9) WASH MOTOR-2

T201
LIVE

T202
HEATER

Preparation for parts replacement

1. Take out the residual water inside the product.
   (Drain the water by operating the drain pump)
2. Close the water supply valve.
3. Turn off the power.
   You must turn off the circuit breaker connected to the product.
4. Pull out the unit from the sink and lay it on the floor.
   Be careful of the drain hose when pulling out the unit.

WARNING: Always turn off the electric power supply & water supply before servicing any electrical component, making ohmmeter checks, or replacing any parts.

Caution : Before moving the unit, laying it down for service, or removing any parts for service be sure to drain as much of the water from the unit as possible. Use a protective mat or towel to prevent damage to the floor or having any of the remaining water spill on the floor.

Note: All voltage checks should be made with a voltmeter having a full scale range of 250 volts or higher. After service is completed, be sure all safety grounding circuits are complete, all electrical connections are secure, and all access panels are in place.

Before servicing, make sure to remove all items include baskets inside dishwasher.

Main PBA

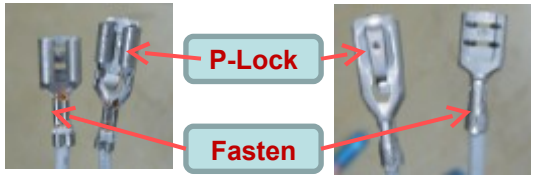
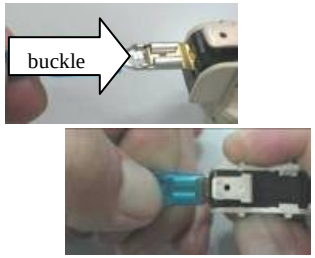
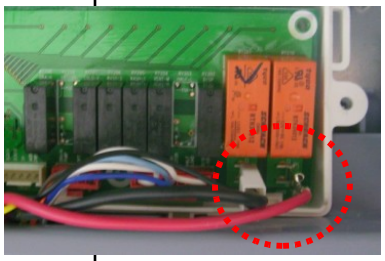
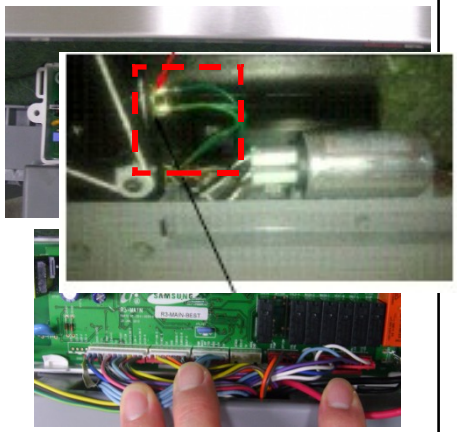
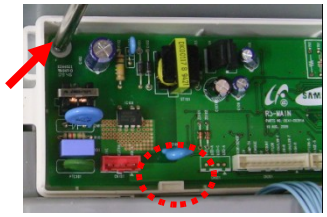
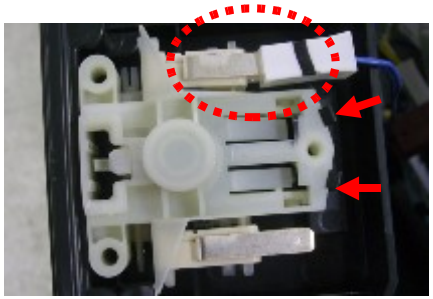
Parts	Photo	Description
Terminal -Fasten type -P-Lock type	This dishwasher use 2 kinds terminal type. 	
Remove the Terminal - P-Lock type		.Terminal with buckle. . Press the buckle, and pull out the terminal.
Remove the Terminal - Fasten type		P-lock type for drain pump. . Use the proper tool to firmly insert or remove the “fasten” type terminals on the Main PCB, the dispenser “rinse aid” level sensor, and the heater. Hold both sides of the connection to prevent bending the terminals or breaking the PCB.

Photo	Description
	Preparation: * Make sure to disconnect the power. 1.You can see the Main-PBA case under the door.
	2. Remove the two (2) screws of PBA case and pull out the PBA cover carefully. 3. Remove the all connectors in the PBA include two(2) fasten type ones at right side.
	4. Remove the three (3) screws on the PBA board . 5. Pull out the PBA board carefully.
	NOTE : When removing the Main PBA, lift up the PBA board carefully because it is hanging to the PBA case with two(2) hooks.

Frame front

Photo	Description
	reparation: Make sure to disconnect the power. Remove the lower basket in the dishwasher. Cover the Assy sump with towel for prevent losing screws.
	. Open the door completely. Remove the 12 screws holding the tub front, frame front, and control panel in place.
	OTE : Before removing it, place a cushioned mat on the floor to prevent being scratched. After removing screws, make sure to hold the tub front using your hand. It can prevent closing door suddenly and harming you.
	aution : Do not place the removed screws on the tub front. They may fall into the sump assy.

Door Lock Switch
(Door latch)

Photo	Description
	**reparation:** Disassemble the frame front. . When removing the door latch, lift up the door latch which is fixed by two hooks. **OTE:** Use a flat screwdriver to remove it. . Release the micro switch.

. Pull out the Frame front & the Assy control panel carefully.

Control Panel
(DW7933)

	1. Push the hook of sub wire housing. 2. Pull out the sub wire from sub PBA.
	3. Remove the two (2) screws for opening the cover of PBA. (in Red circle)
	4. Disassemble the four (4) hooks which are fixing the cover of PBA from the control panel.
	5. Disassemble the eight (8) hooks which are fixing the cover of PBA from the cover for guiding LED and button.
	6. Remove the cover for guiding LED from the ass'y PBA.

Condensing dry system

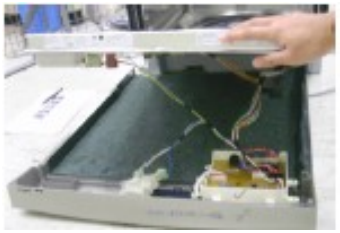
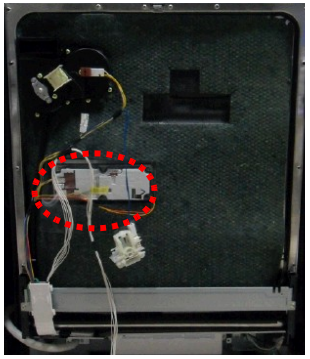
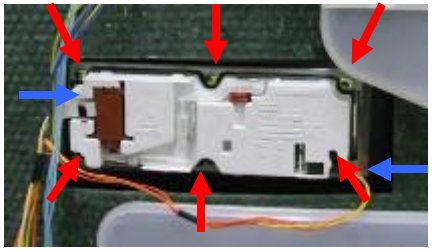
Photo	Description
	. Open the door completely. Remove the twelve (12) screws holding the tub front, frame front, and panel control in place.
	**aution** : Before removing the screws, place a cushioned mat on the floor to prevent the handle and frame front from being scratched, After removing them, make sure to hold the tub front with your hand while you are working as the tub may close and harm you.
	aution : Do not place the removed screws on the tub front. They may fall into the sump assy. . Remove the fan motor & thermal actuator connectors.
	. Remove the single (1) screw holding the bracket cover fan in place.

Photo	Description
	. Remove the cover fan by rotating it counterclockwise.
	se a jig. If you have no jig, use a tool such as a pair of long nose pliers. Remove it carefully so that the part is not damaged. . Remove the two (2) screws holding the cover fan in place.
	. Hold and remove both the case vent assy which are located at the front of the tub front.
	. Remove the fan motor from the case vent assy. It is connected with two (2) screws and the fan vent is inserted into the shaft of the fan motor. Remove the screws first and carefully pull out the fan motor.

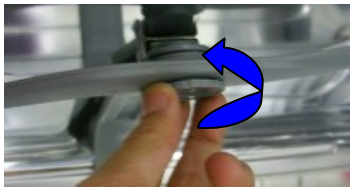
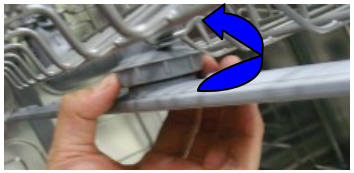
Condensing dry system

Photo	Description
	. Release the three (3) screws at side of case vent.
	. Release the hose vent. Release the hooks at side of case vent. Be careful to avoid breaking them, because they are connected with a hook.
	0. Detaching the case vent.
	1. Remove the fan vent and gasket vent.

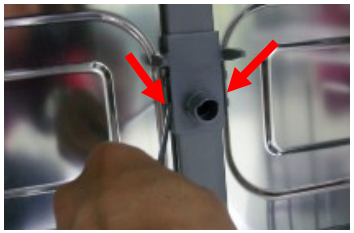
Dispenser

Photo	Description
	**reparation:** Disassemble the frame front. - Refer the “Frame front” disassembly section to separate the Frame front.
	. Remove the three (3) connectors (blue) on both sides of the dispenser. **aution** : Right side’s rinse aid level sensor connectors are fasten type. Be careful don’t break them when removing them.
	. Release the six (6) screws (Red) holding at the tub front and remove the two (2) bracket dispensers in place. . The dispenser is fixed to the tub front with many hooks. Use several flat screwdrivers to remove it . . Push it to the inside carefully.

Nozzles

Photo	Description
	**reparation:** Remove the lower basket in the dishwasher. Make sure to remove the water in each nozzle to block the wet.
	. Upper Nozzle : Remove it by rotating the holder. (counterclockwise)
	. Middle Nozzle : Remove it by rotating the holder from upper basket. (counterclockwise) . Lower Nozzle : Pull out carefully it from the Assy sump.

Duct Nozzle

Photo	Description
	. The duct nozzle is fixed by two brackets inside tub. **NOTE:** Use a flat screwdriver to remove it. e careful don't make scratch on tub.
	. Release the hooks clamping the bracket duct (U) & the bracket duct (M) using a flat screwdriver.
	. Remove the duct nozzle by rotating to left side.

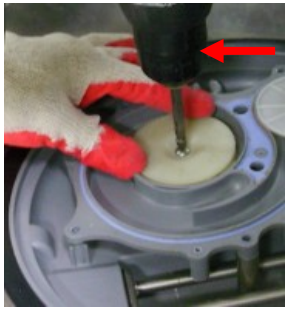
Disassemble the baskets, nozzles and storm wash nozzle.

- Refer the each disassembly section to separate.

Assy Sump
- Upper parts

Filter Mesh body

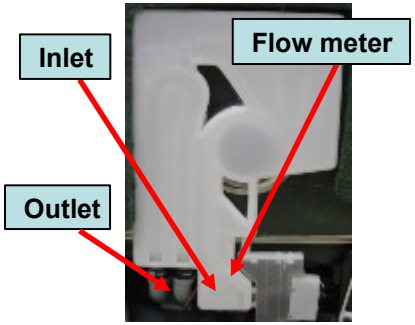
Cover Sump

	Photo	Description
Filter Mesh body & Cover Sump & Impeller & Case scroll & Disposer		. Release the 13 screws on Assy sump. (Except the two (2) screws holding the holder nozzle L in center place.) Take off the filter mesh body, cover sump(& holder nozzle L).
		. Pull out the Assy cover sump slightly. And, Hold and rotate slightly the duct nozzle & Assy case sump each other.
		3. Release the screw (1) that is fixing the impeller and circulation motor shaft. **aution** : Use the gloves for your hand to hold the impeller during releasing the screw. Be careful your hands to harm.
		Only for DMT800 series) . Remove the plate-distribute. . Remove the case scroll. Check if the seal rubber scroll is normal. If it is damaged or hardened, replace it. . Remove the cutter disposer. **aution** : Both sides of cutter are sharp. Be careful when removing it. “U” stamp is upside.

reparation:

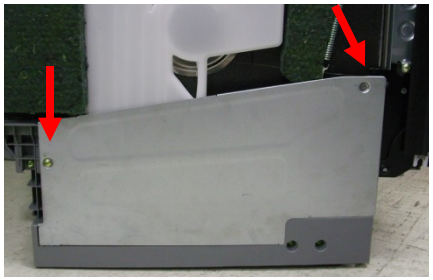
Make sure to disconnect the power & water supply & drain hose connections.

Assy Case Brake & Assy Case Sensor

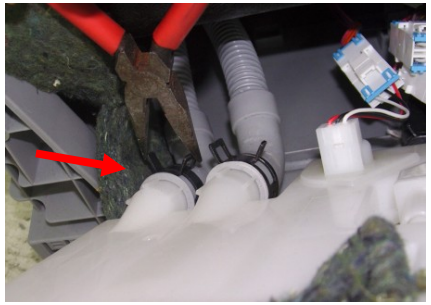
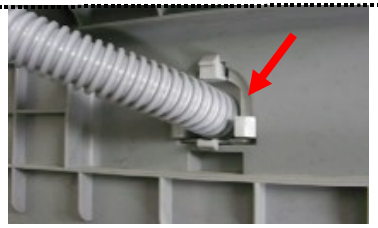
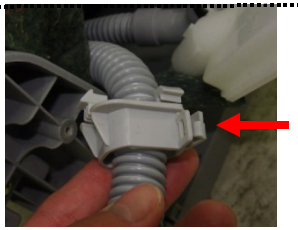


Assy case sensor

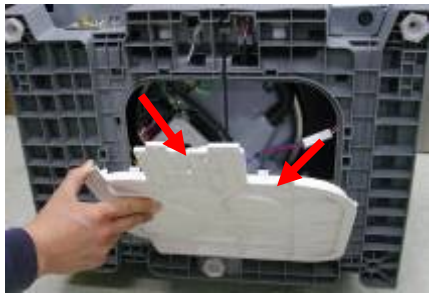
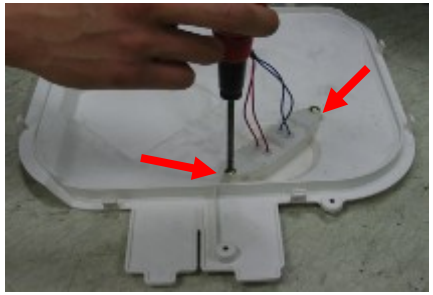
Assy case brake

Photo	Description
	Remove the upper & lower baskets in the dishwasher. Pull out the dishwasher carefully. . Remove the two (2) screws of the frame left. . Remove the frame left.
	aution : Make sure to wear gloves when removing it. Be careful as the steel plate may harm you. . Remove cover brake rotating it.(counterclockwise) Use a jig. If you have no jig, you can use a long nose pliers covering with fabric.
	It can make scratch or breakage, be careful) . Disconnect the three(3) sensor connectors. - flow meter, water level , over flow .
	. Remove the Assy case sensor from the Assy case brake. . Loosen the four (4) clamps and release the four (4) hoses from the Assy case brake and Assy case sensor.

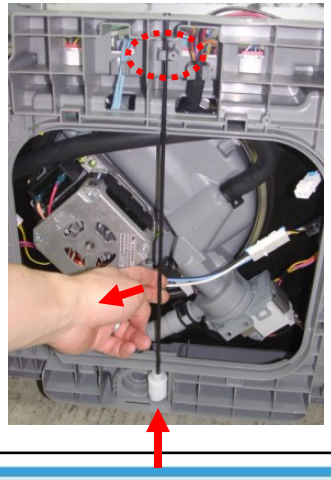
Drain Hose

Photo	Description
	**reparation:** Disassemble the Assy case brake. - Refer the Assy case brake disassembly section to separate.
	. Loosen the clamp(left side in picture) and release the hose from the Assy case brake.
	. You can see the hose holder in the dishwasher backside. . Push the three(3) hooks of the drain hose holder to inside.
	. Pull out the hose carefully at side position. Remove the hose holder by releasing the

Shutter

Photo	Description
	**reparation:** Make sure to disconnect the power & water supply & drain hose connections. Remove the upper & lower baskets in the dishwasher. Pull out the dishwasher carefully. . Lay down the dishwasher on its back. Release the two(2) screws fixing the base and shutter in place.
	. Pull out the shutter and release the leakage sensor connector. . Remove the leakage sensor from the shutter by unfastening the two(2) screws.

Rear Leg + Adjust bar

Photo	Description
	Make sure to disconnect the power & water supply & drain hose connections. Remove the upper & lower baskets in the dishwasher. Pull out the dishwasher & Lay down the dishwasher on its back carefully. Remove the shutter.
	. Rotate the rear leg adjust bar below Door to right turn entirely until pull out the rear leg.
	. Release the screw that is holding case gear and remove it.
	. Case gear is made up of worm gear and helical gear. Pull out worm gear at first. . Hold the adjust bar & pull in it pushing helical gear from backside.

ote : Adjust leg bar is holding by

Bracket front lower

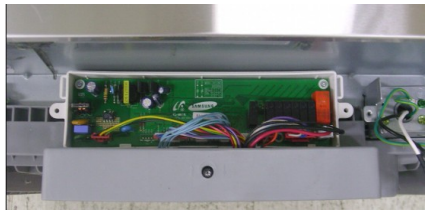
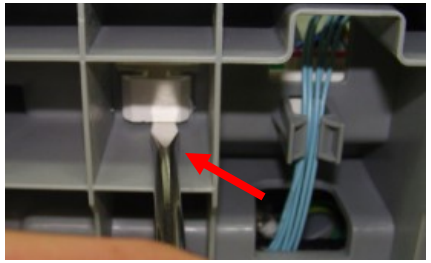
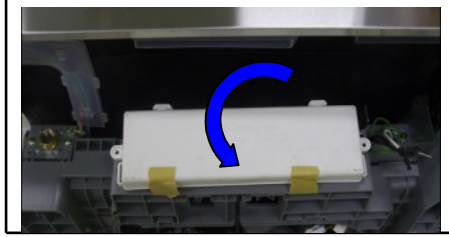
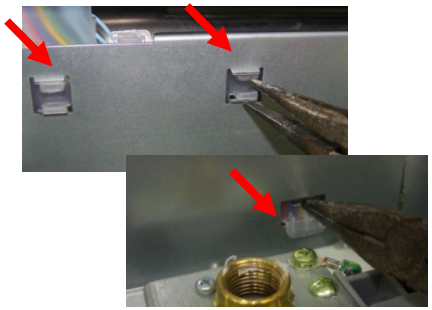
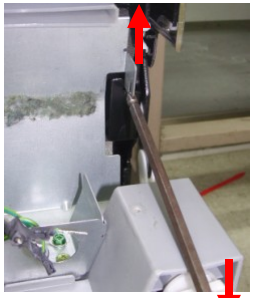
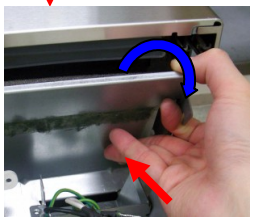
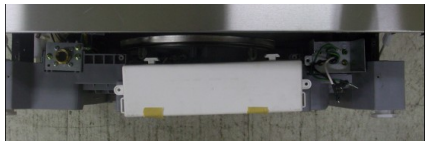
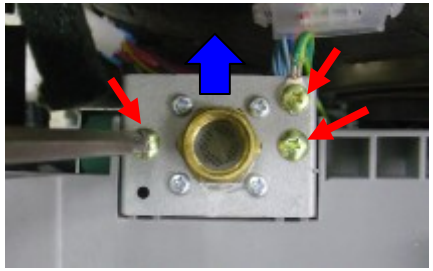
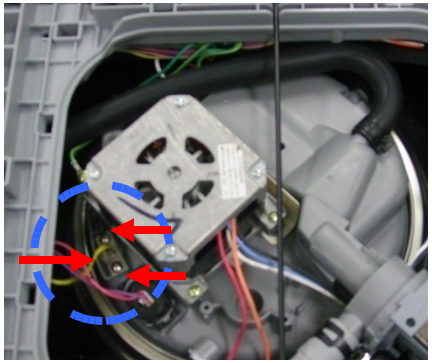
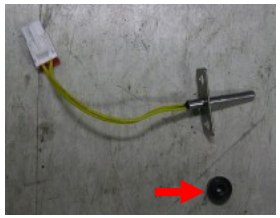
Photo	Description
	**reparation:** Make sure to disconnect the power & water supply & drain hose connections. Remove the upper & lower baskets in the dishwasher. Pull out the dishwasher & Lay down the dishwasher on its back carefully. Remove the water supply line(& elbow).
	**aution** : Make sure to close the faucet before removing the water supply line. . Remove the cover PCB and pull out case PCB without disconnecting wire connectors.
	- When remove case PCB, lift up two(2) clasps using flat screwdriver as lever effect. . Pull out the case PCB and fix it using standard duct tape like as picture.

Photo	Description
	4. The bracket front lower is fixed with the guide wire with three hooks. Use a long nose pliers or flat screwdriver.
	5. Using a Philips screw driver, lift up the each clasp on both sides of the bracket front lower.
 	6. To remove the bracket front lower entirely, push inside and pull out outer surface holding each sides. (refer the pictures.)

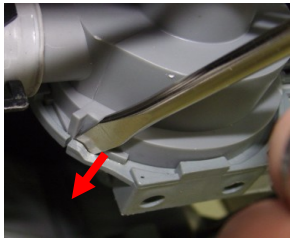
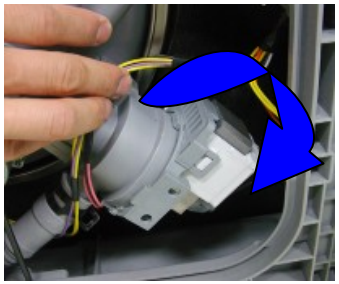
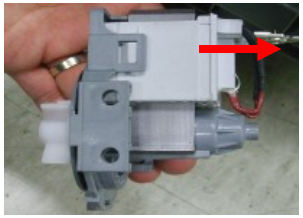
Water Valve

Photo	Description
	**reparation:** Disassemble the bracket front lower & frame left. - Refer the “bracket front lower” disassembly section.
	. Remove the two (2) screws and ground wire screw from the inlet valve.
	. Lift up the inlet valve and disconnect the inlet valve wire connector. . Release the hose clamp and disconnect hose. **aution** : Take care when holding and removing the clamp with a tool, as it may bounce and harm you. **aution** : Make sure to remove remain water in the dishwasher. If not, wet the floor.

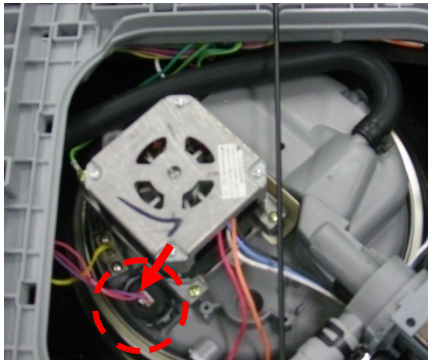
Thermistor

Photo	Description
	**reparation:** Disassemble the shutter. - Refer the “shutter” disassembly section. . Disconnect the wire terminal connected to the thermistor.
	. Release the two(2) screws of thermistor. . Pull out it carefully. **OTE** : The thermistor has a seal .

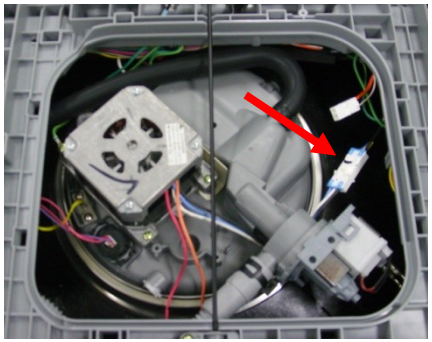
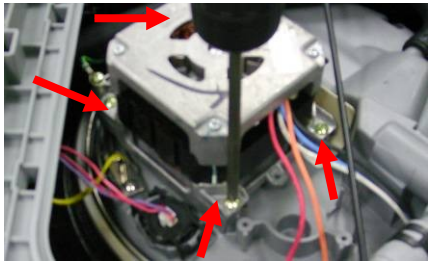
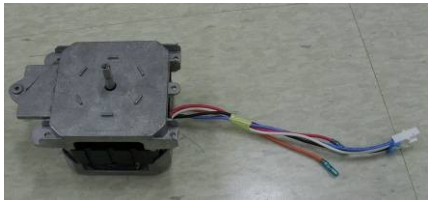
Drain Pump

Photo	Description
	**reparation:** Disassemble the shutter. - Refer the “shutter” disassembly section.
	. Remove the drain pump by rotating it clockwise lifting up the hook holding it in place slightly. **aution** : Make sure to remove remain water in the dishwasher. If not, wet the floor.
	**OTE** : The drain pump has a seal . . Disconnect the two(2) drain pump connectors.

Turbidity Sensor

Photo	Description
	**reparation:** Disassemble the shutter. - Refer the “shutter” disassembly section. . Remove the turbidity sensor connector.
	. Remove the two hooks from the turbidity sensor. **aution** : Use a flat screwdriver carefully to remove it from the Assy sump preventing breakage. **OTE** : The turbidity sensor has a seal .

Circulation Motor

Photo	Description
	**reparation:** Disassemble the cover sump & cutter disposer and shutter. Refer the each disassembly section.
	. Remove the circulation motor and capacitor connection. . Remove the four(4) screws holding the circulation motor and the sump in place, and the one(1) screw for earth connection from main wire-harness.
	. Hold and pull out the circulation motor carefully to remove it from the sump.

aution : Make sure to remove remain water in the dishwasher. If not, wet the floor.

Heater

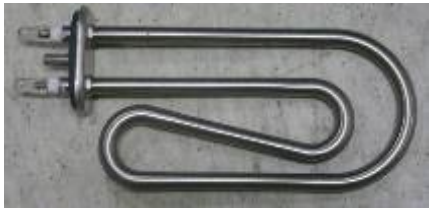
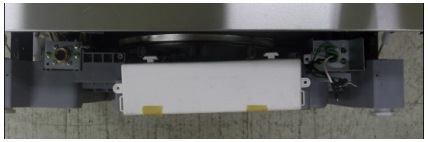
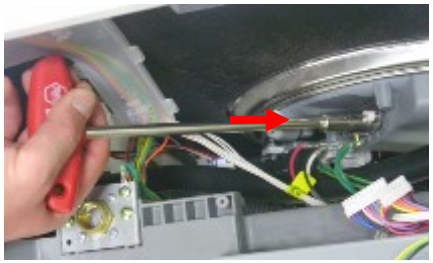
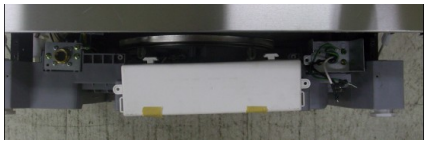
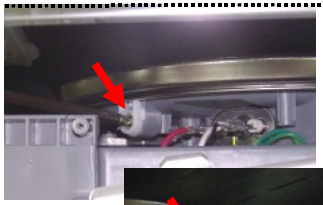
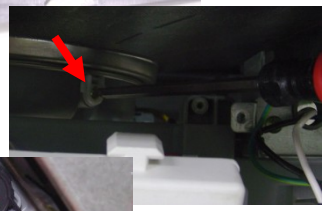
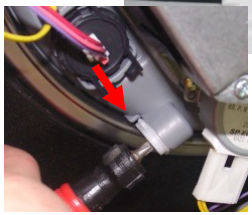
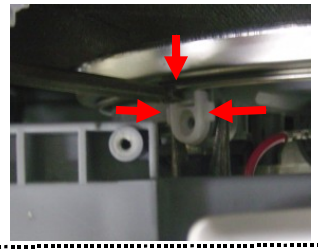
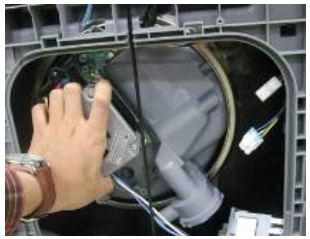


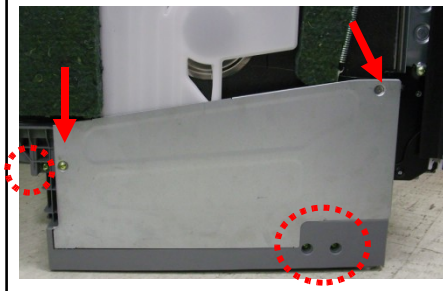
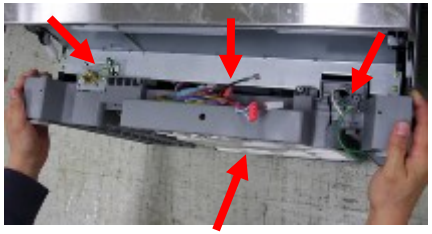
Photo	Description
	**reparation:** Make sure to disconnect the power. Disassemble the cover sump & cutter disposer. Disassemble the shutter & bracket front lower. Refer the each disassembly section.
	. Remove the two (2) heater connectors.
	. Remove a ground screw on the heater bracket. . Release a nut using nut driver(10mm).

. Push the heater inside of case sump carefully.

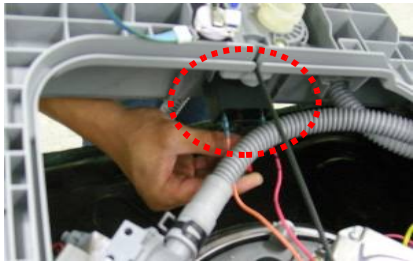
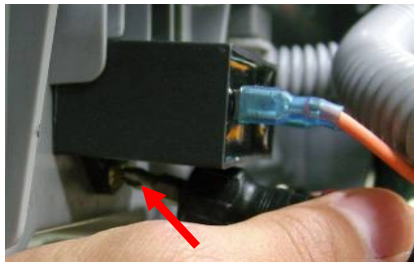
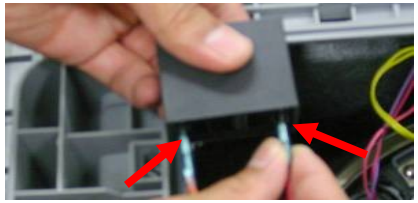
Assy Sump

Photo	Description
	**reparation:** Disassemble the baskets, nozzles, duct nozzle & storm wash nozzle. Disassemble the frame left & the shutter & bracket front lower. - Refer the each disassembly section.
 	. Remove the parts which are connected with Assy sump. - connectors, drain pump, screws
	. Remove the three (3) screws & holders in Assy sump.
	**OTE** : Pull out the holder outside using long-nose pressing the hook using driver.
	

Base

Photo	Description
	**reparation:** Disassemble the frame L/R and the shutter. - Refer the each disassembly section.
	. Remove the six (6) screws of the base plate both-side. (in Red circle) . Lay down the dishwasher on its back carefully.
	. Remove the cover PCB and pull out case PCB with disconnecting wire connectors. . Disconnect the wire connectors from Assy Sump.

C-Motor Capacitor

Photo	Description
	**Preparation:** Disassemble the base slightly to the other side. - Refer the each disassembly section.
	. You can see a capacitor above the rear adjust leg. . Remove a screw that fix the capacitor on the base.
	. Disconnect the two(2) wire connectors from the capacitor.

. Pull out the base plate to

Shooting

– DW7933 series

Code symbol	Meaning	Occurring condition	Expected condition
Normal Heavy Quick + Smart Auto	Temperature sensor Error	When 0.2V or below, or 4.5V or above is maintained for over 3 seconds	Thermistor terminal is not connected Possible defect : Thermistor , Main PBA
Normal Heavy Quick + Smart Auto	Heater Error	When the temperature change is 4□ or less within the first 10 minutes after the heating starts	Heater terminal is not connected Possible defect : Main Wire-Harness, Heater, Main PBA
Normal Heavy Quick + Smart Auto	High temperature Heating error.	When the temperature of the Thermistor is 80□ or above for more than 3 seconds during operation.	Water temperature is 80□ or above Possible defect : Thermistor , Main PBA
Normal Heavy Quick + Smart Auto	Low-level water error	1.When high level sensor is not detected after water supply was done, drain & refill the water. After then, if high level sensor is not detected again, this error is occurred. 2.When low level sensor is detected over 5 seconds during wash operation, this error is occurred.	Water Level Sensor terminal is not connected Possible defect : Assy case sensor, Water Level Sensor , Main PBA
Normal Heavy Quick + Smart Auto	Water supply error	1. When the pulse of 100 or less is detected even 73 seconds after the water supply 2. When flow meter pulse is 5 or less for 13 seconds after the water supply starts 3. When the water supply is not finished until 6 minutes after the water supply starts	Alien particles within water supply valve Water supply valve terminal not connected Possible defect : Main PBA, Water supply valve , Flow Meter
Normal Heavy Quick + Smart Auto	High temperature Water supply error	When 80□ or above is detected during water supply	Water supply temperature is 80□ or above Possible defect : Thermistor, Main PBA
Normal Heavy Quick + Smart Auto	Drain error	When OFF status of Low Level S/W is not detected within 3 minutes during the drain.	Alien particles are clogging in drain hose Drain pump terminal is not connected Possible defect : Drain pump, Water Level Sensor , Main PBA
Normal Heavy Quick + Smart Auto	Over-level water error	When overflow detection AD data is 3.5V or below for 3 seconds (When leakage sensor detects 3.5V or below for 1 seconds during water supply)	Alien particles within water supply valve Case Sensor part breakdown Possible defect : Flow Meter, Main PBA, Water supply valve
Normal Heavy Quick + Smart Auto	Leakage	When leakage sensor detects 3.5V or below for 1 seconds	Possible defect : Each hose connection , Sump and Tub assembly, Drain Pump assembly , Main PBA
Normal Heavy Quick + Smart Auto	Button error	When the button is pressed continuously for over 10 seconds	Possible defect : Sub PBA in control panel, Main PBA
Normal Heavy Quick + Smart Auto	Door open warning	When door is open in washing period.	Door is not close properly in test mode only. Possible defect : Door lock switch, Main PBA

ion Mode- DW7933 series

uick+' + 'Power' buttons at the same time for two seconds to enter Service Inspection Mode.
ed for the first two seconds and then Software-Ver. will be indicated.
mode by pressing the Normal button again. If press the Normal button in this mode, the mode will be changed to next mode.
ate a mode while operating the dishwasher, the door must be closed.
error occur, enter Service Inspection Mode after resolving it.
n Mode is described in the following table.

Mode	Display	Related Parts	Symptoms	Note
No.1	'Smart Auto' LED	•Drain pump •Inlet Valve •Flow Meter •Water Level Sensor •Turbidity	Door open warning Water supply Error Low level water Error Turbidity Error	If Door is open, Door open warning ('Quick+ + Smart Auto' LED) will blink. If low level sensor is not detected, Drain is executed. Water supply will be executed when low level sensor is detected. If water is not fully supplied(sensing on flow-meter), the Water Supply Error ('Smart Auto' LED) will blink. When high level sensor is not detected after water supply was done, Low-level water error ('Normal + Heavy + Smart auto' LED) will blink. When Turbidity problem is occurred after water supply was done, Turbidity Error ('Normal + Heavy' LED) will blink. If all functions in this mode are completed, Wash LED will blink.
No.2	'Quick+' LED	•Circulation Motor	A nozzle does not inject water.	If Low Level sensor is detected before Circulation Motor is operating, ('Quick+ + Sanitize' LED) will blink. When water is filled enough, Circulation Motor -2(190W) will be operated.
No.3	'Quick+' + 'Smart Auto' LED	•Circulation Motor	A nozzle does not inject water.	If Low Level sensor is detected before Circulation Motor is operating, ('Quick+ + Smart auto + Sanitize' LED) will blink. When water is filled enough, Circulation Motor- 1(150W) will be operated.
No.4	'Heavy' LED	•Circulation Motor •Heater •Thermistor •Dispenser	Heater Error	If Low Level sensor is detected before Circulation Motor is operating, ('Heavy + Sanitize' LED) will blink. When water is filled enough, Circulation Motor 1(150W) and Heater will be operated. When the temperature meet 60□ or above, the heater is turned off. If Heater or Thermistor have problems, the Heater Error ('Heavy + Quick+' LED) will blink. Dispenser will operate during 130 seconds only one time.
No.5	'Heavy' + 'Quick+' + 'Smart Auto' LED	•Dry Fan Motor •Dispenser	The Dry Fan motor does not work.	Operate the Dry Fan Motor and check whether Rinse aid is filled or not. If there is not rinse aid in Dispenser, Low Rinse lamp is ON.

ion Mode- DW7933 series

Mode	Display	Related Parts	Symptoms	Note
No.6	'Normal' LED	•Inlet valve •Overflow Sensor	Over level water Error	Water is supplied until Over-level water error ('Heavy + Smart Auto' LED) is blinked. If Over-level water error occurs, overflow sensor is OK.
No.7	'Normal' + 'Smart Auto' LED	•Drain Pump •Water Level Sensor	Drain Error	Drain pump will drain until low level sensor is detected. If Low level sensor is not detected after 60 seconds, Drain Error ('Quick+' LED) will blink.
No.8	'Normal' + 'Quick+' + 'Smart Auto' LED	•Inlet Valve •Circulation Motor •Dry Fan Motor •Drain Pump •Heater		Operate each operating part when the key is pressed. (See the below) When the 'Smart Auto' Key is pressed Water supply is On('Smart Auto' LED On) and pressed again it is Off ('Smart Auto' LED Off) When 'Heavy' Key is pressed each time, it works the Circulation Motor-1 is On ('Heavy' LED On) -> Off ('Heavy' LED Off) -> Circulation Motor-2 is On ('Heavy' LED On) -> Off ('Heavy' LED Off) -> Dry Fan Motor is On ('Heavy' LED On) -> Off ('Heavy' LED Off), Drain Pump is On ('Heavy' LED On) -> Off ('Heavy' LED Off). When 'Quick+' Key is pressed, it woks Heater On ('Quick+' LED On during 2 seconds) and Off automatically. When a different key is pressed during individual operation of the operating part, present operating part is stopped and the applicable operation for the pressed key will start.

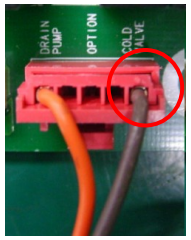
chart

Cycle	Pre-wash1	Pre-wash2	Main wash	Rinse 1	Rinse2	Rinse3	Last Rinse [Sanitize]	Dry (min.)	Water [gal(ℓ)]	Time (min.)
Normal	•	Flex	120 ~ 138 ˚F (49 ~59 ˚C)	Flex	•	x	136 ˚F (58 ˚C) [162 ˚F (72 ˚C)]	30	3.6~7.2 (14.8~27.2)	110~132
Heavy	•	•	140 ˚F (60 ˚C)	•	•	•	158 ˚F (70 ˚C) [162 ˚F (72 ˚C)]	40	9.0 (34.0)	152
Quick +	•	x	140 ˚F (60 ˚C)	x	•	x	140 ˚F (60 ˚C) [162 ˚F (72 ˚C)]	15 (+15)	5.2 (19.6)	59
Smart Auto	•	Flex	122 ˚F~138 ˚F (50~59 ˚C)	Flex	•	x	136 ˚F (58 ˚C) [162 ˚F (72 ˚C)]	30	5.2~7.2 (19.6~27.2)	100~149

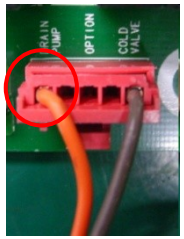
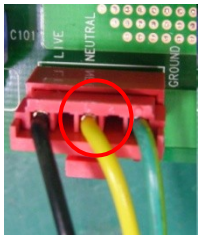
s in parentheses in the Last Rinse column represent the temperature when you select Sanitize.
elect the Smart Auto or Normal cycle, you can eliminate the Flex(flexible) steps depending on the soil level of

• The wash time varies depending on the steps or options you add, and on the pressure and temperature of the supplied water.
• If “Rinse Refill” lamp lights during a cycle, the dishwasher adds 30 more minutes to the Drying cycle automatically after the Clean light illuminates.

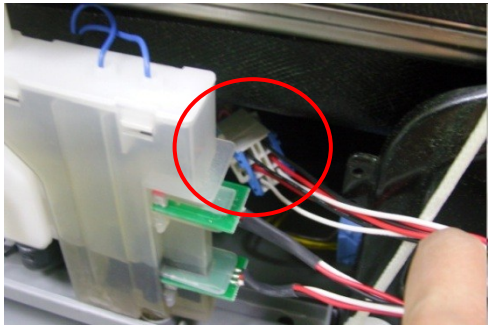
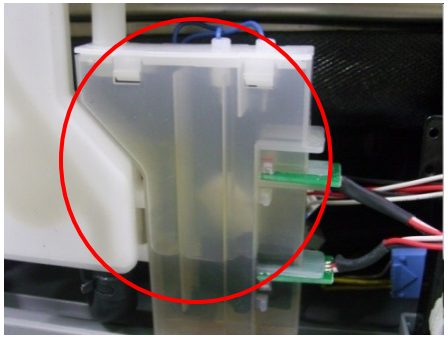
Trouble Shooting

Error Type	Error Mode	Checking Method	Corrective actions
Water supply Error	4E [Or] 'Smart Auto' LED	1. Check whether the water faucet is open.	- Open the faucet.
		2. Check whether the water supply has been cut off.	- Close the faucet and turn off the power. Wait until the water supply resumes.
		3. Check whether any foreign material is in the Water Supply Line and the water Inlet Valve filter.	- Remove the foreign material. Clean the filter with a brush.
		4. Check the connection for the Inlet Valve connector.	- Reconnect the Inlet Valve connector.
		5. Check whether the coil in Inlet Valve is conductive (Remove the connector before measuring.) ➢ Normal: Approx. 1.2 kΩ	-Faulty: Replace the Inlet Valve.
		6. Check whether the Inlet Valve is operating normally. - Check the operation of the Inlet Valve ➢ Normal: 120V - Check the Inlet Valve Relay. : Check the voltage between the yellow wire of the Main PBA CN101 connector and the brown wire of the CN202 ➢ Normal: 120V (while operating)	- Faulty: Replace the Main PBA assy. - Normal: Replace the Inlet Valve - Check voltage 
		7. Check whether the water supply stops after water is supplied for 5 seconds.	- Replace the Assy Case Brake which is including Flow Meter.
		8. Check whether the water supply stops after water is supplied for 1~5 minutes.	- Check the water supply valve and increase the water pressure.
		9. Check whether the water supply stops after water is supplied fully until the floater in Assy Case sensor is located in High level sensor.	- Replace the Assy Case Sensor which is including water (high & low) level sensor.

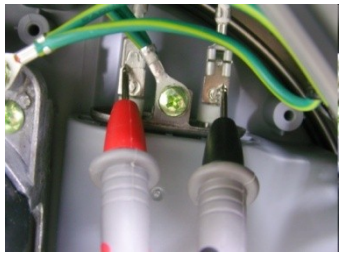
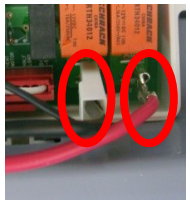
Trouble Shooting

Error Type	Error Mode	Checking Method	Corrective actions
High temperature Water supply error	3E [Or] 'Normal' + 'Quick+' + 'Smart Auto' LED	1. Check the hot water connections for the Inlet Valve.	- Adjust the hot water supply so that the temperate of the supplied water is less than 176˚F (80˚C)
		2. Check the operation of the Thermistor.	- See the "Temperature sensor error".
Drain Error	5E [Or] 'Quick+' LED	1. Check whether there is any foreign material in the Drain Hose.	- Remove the foreign material from the Drain Hose.
		2. Check the operation of the Water Level Sensor.	- See the "Low Level Water Error".
		3. Check the connections for the Drain Pump connector.	- Reconnect the Drain Pump connector.
		4. Check whether the Drain Pump coil is conductive. (Remove the connector before measuring.) ➢ Normal: Approx. 25Ω	- Faulty: Replace the Drain Pump.
		5.Check the operation of the Drain Pump Relay : Check the operating voltage between the yellow wire of the Main PBA CN101 connector and the orange wire of the CN202 connector. ➢ Normal: 120V (while operating)	- Faulty: Replace the Main PBA assy. - Normal: Replace the Drain Pump. - Remove retainer. - Check voltage  

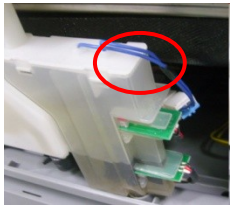
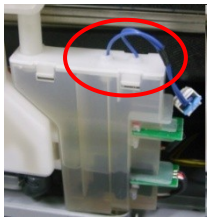
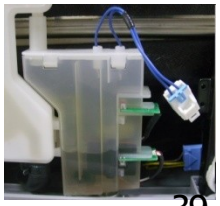
Trouble Shooting

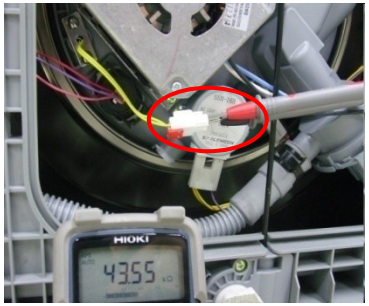
Error Type	Error Mode	Checking Method	Corrective actions
Low-level water error	9E [Or] 'Normal' + 'Heavy' + 'Smart Auto' LED	1. Check the connections for the Water Level Sensor connectors.	- Reconnect the Water Level Sensor connector. 
		- Faulty: Replace the Assy case sensor, Remove foreign material from the floater - Normal: Replace the Main PBA assy.	- Faulty: Replace the Assy case sensor, Remove foreign material from the floater - Normal: Replace the Main PBA assy. 
Button Error	bE [Or] 'Normal' + 'Quick+' LED	Check whether there is condensation on the Main PBA connector (CN102) ➢ Normal: No condensation	- Faulty: Remove any condensation and moisture. - Normal: Replace the Control Panel assy.

Trouble Shooting

Error Type	Error Mode	Checking Method	Corrective actions
Heater Error	HE [Or] 'Heavy' + 'Quick+' LED	1. Check the connections of the Heater connectors.	- Reconnect the Heater connectors.
		2. Check the resistance between both ends of the Heater. : Check the resistance between both ends of the Heater directly, or check the resistance between the red wire of the Heater Relay and the amber and yellow wires of the Power Relay, respectively. ➢ Normal: Approx. 13.5Ω * Check after disconnecting circuit breaker or power cable.	- Faulty: Replace the Heater. 
		3. Check the connections of the Heater Relay in Main PBA. : Check the voltage between Main PBA T101 connector and T102 connector. ➢ Normal: 120V (while operating)	- Reconnect the Heater Relay connectors. 

Trouble Shooting

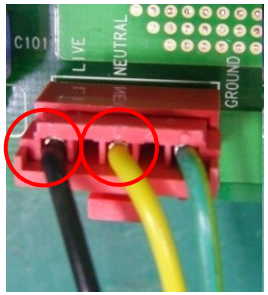
Error Type	Error Mode	Checking Method	Corrective actions
High Temperature Heating Error	1E [Or] 'Normal' + 'Smart Auto' LED	1. Check the hot water connections for the Inlet Valve.	- See the "Temperature Sensor Error".
		2. Check the operation of the Thermistor.	- See the "Heater Error".
Leakage Error	LE [Or] 'Heavy' LED	Check whether there is any trace of water leakage in the shutter. ➢ Normal: No water leakage trace	- Faulty: Check the leakage location. Replace the faulty part. - Normal: Replace the Main PBA assy.
Over-level water error	oE [Or] 'Heavy' + 'Smart Auto' LED	1. Check the connections for the Overflow Sensor connector.	- Reconnect the Overflow Sensor connector. 
		2. Check whether the Inlet Valve operates normally.	- See "Water supply Error".
		3. Check whether water is supplied (even small amounts) in the intervals when the Inlet Valve is not operating.	- Remove foreign material from the Inlet Valve. - If you cannot remove the foreign material from the Inlet Valve, replace it.
		4. Check whether there is any trace of water leakage on the top of the Case Sensor.	- Clean the Hose-Sensor and the Case Sensor. 
		5. Check whether an "Over Level Water Error" is detected when the assy wire-harness connector for Overflow Sensor is not connected. ➢ Normal: The "Over Level Water Error" does not occur.	- Faulty: Replace the Main PBA assy. -Normal: Replace the Assy case brake (flow-meter). 

Error Type	Error Mode	Checking Method	Corrective actions
Temperature Sensor error	tE [Or] 'Heavy' + 'Quick+' + 'Smart Auto' LED	1. Check the connections for the Thermistor connector.	- Reconnect the Thermistor connector.
		2. Check whether the Thermistor is operating normally. - Measure the voltage between both ends of the Thermistor. ➢ Normal: 0.2 to 4.5V - Measure the resistance between both ends of the Thermistor: Remove the connector before measuring. (See the Table right.)	- Faulty: Replace the Thermistor. - Normal: Replace the Main PBA assy. 

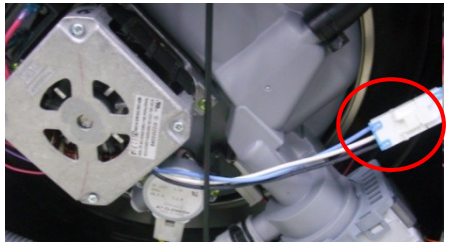
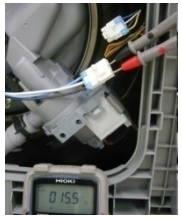
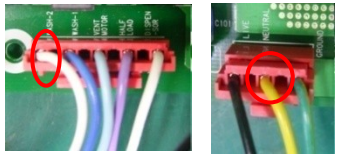
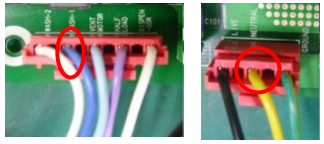
THERMISTOR TABLE

Temp. (ºC)	Temp. (ºF)	Resistance (kΩ)
5	41	125.780
10	50	98.323
15	59	77.454
20	68	61.465
25	77	49.120
30	86	39.517
35	95	31.996
40	104	26.065
45	113	21.358
50	122	17.599
55	131	14.579
60	140	12.140
65	149	10.159
70	158	8.542

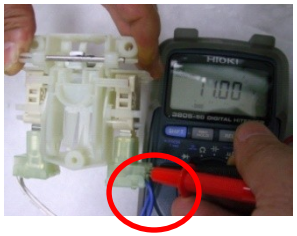
Trouble Shooting

Error Type	Error Mode	Checking Method	Corrective actions
Power Error	None	1. Check the connections for the power cable.	- Reconnect the power cable.
		2. Check the voltage of the power outlet. ➢ Normal: AC 120V	- Connect to a 120V power source.
		3.Check the wires of the Main PBA power part. - Measure the voltage between the black wire and the yellow wire of CN101. ➢ Normal: AC 120V	-Faulty: Check and replace the wires of the power part. - Check voltage 
		4. Check the DC voltage of the Main PBA.	- See “Main PBA DC voltage error”.
Main-PBA DC Voltage Error	None	Check the DC voltage of the Main PBA. - Measure the voltage between pin 4 (orange) of the main PBA CN302 connector and pin 7 (pink) of the CN301 connector. ➢ Normal: 4.5V to 5.5V - Measure the voltage between pin 10 (blue) of the main PBA CN302 connector and pin 9 (white) of the CN302 connector. ➢ Normal (Power Key On): 9.5V to 12.5V ➢ Normal (Power Key Off): 5.5V to 7.0V	-Faulty: Replace the Main-PBA Assy. -Check voltage (4.5V~5.5V) - Check voltage (9.5V~12.5V or 5.5V~7.0V)

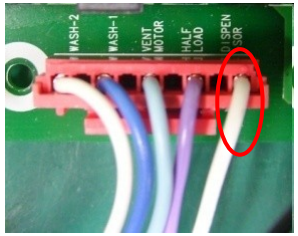
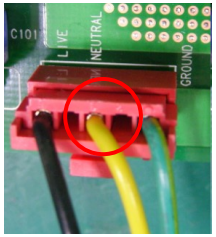
Trouble Shooting

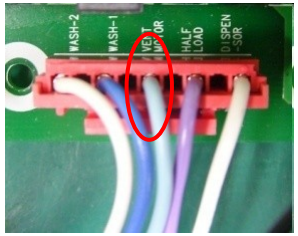
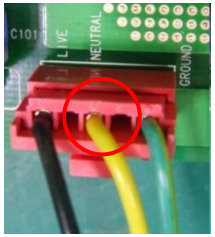
Error Type	Error Mode	Checking Method	Corrective actions
The nozzle does not inject water.	None	1. Check the connections for the Circulation Motor connector.	- Reconnect the Circulation Motor connector.
		2. Check the connections for the Startup Condenser connector of the Circulation Motor.	-Reconnect the Startup Condenser connector of the Circulation Motor. 
		3. Check the resistance for the Circulation Motor coil. (Remove the connector before measuring.) - Between black wire and white wire ➢ Normal: Approx. 15 Ω -Between black wire and blue wire ➢ Normal: Approx. 21 Ω	- Faulty: Replace the Circulation Motor. 
		4. Check the operation of the Circulation Motor Relay. -At No.2 mode in service inspection mode, Check the operating voltage between the yellow wire of the CN101 connector and the white wire of the CN201 connector. ➢Normal: 120V (while operating) -At No.3 mode in service inspection mode, Check the operating voltage between the yellow wire of the CN101 connector and the blue wire of the CN201 connector. ➢Normal: 120V (while operating)	- Faulty: Replace the Main PBA assy. - Normal: Replace the Circulation Motor. -Remove Retainer. - Check voltage while operating Wash motor-2(High)  - Check voltage while operating Wash motor-1(Low) 
		5. Check whether there is foreign material in the water passages.	- Remove foreign material from the water passages.

Trouble Shooting

Error Type	Error Mode	Checking Method	Corrective actions
The Cycle does not start.	None	1. Check the connections for the Door Sensing Switch : Check the blue wire and the switch connected to the blue wire. ➢ Normal (Power Key On): 9.5 to 12.5V (when the door is open) ➢ Normal (Power Key Off): 5.5 to 7.0V (when the door is open) ➢ Normal : <2V (when the door is closed)	- Reconnect the Door Sensing Switch connectors 
		2. Check the operation of the Door Sensing Switch. (Remove the connector before measuring.) : Check the blue wire and the switch connected to the blue wire. ➢ Normal: OPEN (when the door is open) ➢ Normal: SHORT (when the door is closed)	- Faulty: Replace the Door Sensing Switch. - Normal: Replace the Main PBA assy.
No Washing	None	1. Check whether the nozzle injects water normally.	- See “The nozzle does not inject water”.
		2. Check the operation of the Heater.	- See “Heater Error”.

Trouble Shooting

Error Type	Error Mode	Checking Method	Corrective actions
Detergent is not dispensed.	None	1. Check whether detergent is inserted into the dispenser.	- Check whether there is detergent in the Dispenser.
		2. Check the connections for the Dispenser connector.	- Reconnect the Dispenser connector.
		3. Check the resistance of the Dispenser. (Remove the connector before measuring.) ➢ Normal: Approx. 2.3 kΩ	- Faulty: Replace the Dispenser.
		4.Check the operation of the Dispenser Relay. : Check the operating voltage between the yellow wire of the CN101 connector and the white wire of the CN201 connector. ➢Normal: 120V (while operating)	-Faulty: Replace the Main PBA assy. - Check voltage  

Error Type	Error Mode	Checking Method	Corrective actions
Dry is not satisfied.	None	1. Check whether Rinse Refill LED light or not.	- If Rinse Refill LED light, refill rinse in Dispenser.
		2. Check the wire connections for the Dry Fan Motor.	- Reconnect the Dry Fan Motor connectors.
		3. Check the resistance of the Dry Fan Motor coil. (Remove the connector before measuring.) ➢ Normal: Approx. 150 Ω	- Faulty: Replace the Dry Fan Motor assy.
		4. Check the resistance of the Thermal Actuator. (Remove the connector before measuring.) ➢ Normal: Approx. 1.45 kΩ	- Faulty: Replace the Thermal Actuator.
		5.Check the operation of the Dry Fan Motor Relay : Check the operating voltage between the yellow wire of the C101 connector and the sky wire of the CN201 connector. ➢ Normal: 120V (while operating)	-Faulty: Replace the Main PBA assy. -Check voltage  
		6. Check the operation of the dispenser. ➢ If rinse aids are not dispensed, a dry error may occur. ➢ Because the dishes are heated and heat dried during the last drying cycle, the dried state of plastic dishes may not be optimal.	- See “Detergent is not dispensed”

Trouble Shooting

Error Type	Error Mode	Checking Method	Corrective actions
LED or Input Key Fail	None	1. Check the connections for the Sub PBA connector	- Reconnect the Sub PBA connectors..
		2. Check the LED and Input Key 1) Push ‘Normal’ + ‘Heavy’ + ‘Power Key’ 2) Push ‘Normal’ Key 4 times 3) Push all key. ➢ Normal : All LED is light.	- Faulty : Replace the Sub PBA.
		3. Check the DC voltage of the Main PBA.	- See “Main PBA DC voltage error”.

Trouble Shooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
Will not start.	The door is not closed completely.	Check that the door is latched and closed completely.
	No cycle is selected.	Select a proper cycle.
	The power cable is not connected.	Connect the power cable properly.
	The water supply does not work.	Check that the water supply valve is open.
	Control panel is locked.	Unlock the child lock.
	A circuit breaker is open.	Reset the circuit breaker.
There are food particles remaining on dishes. (Not cleaning properly.)	You selected an inappropriate cycle.	Select a cycle according to the number and soil level of the dishes, as directed in user manual.
	The water temperature is low.	Connect the water supply line to a hot water supply. For best performance, the temperature of the supplied water should be 120 ˚F (49 ˚C).
	Low water pressure.	The water pressure should be between 20 and 120 psi (140 ~ 830kPa).
	The water is too hard.	Use a commercial dishwasher cleaner. Use a high-quality and fresh detergent with rinse aid.
	Dishwasher detergent was not used.	Use a automatic dishwasher detergent. We recommend a powder or gel type dishwasher detergent.
	The amount of detergent was inappropriate.	Use the appropriate amount of automatic dishwasher detergent.
	Detergent remains in the dispenser.	Check the position of dishware such as cookie sheets, cutting boards, or large containers, etc. that maybe blocking the detergent dispenser from opening properly. Rearrange the dishes so they do not interfere with the detergent dispenser operation.
	There is no rinse aid.	Check the dispenser and add the rinse aid. Use the liquid type rinse aid.
	A nozzle is clogged.	Clean the nozzle.
	The dishes are improperly loaded. Too many dishes have been loaded.	Rearrange the dishes so they do not interfere with the nozzle rotation and the detergent dispenser operation. Load only an appropriate number of dishes. Load your dishes as recommended.

Trouble Shooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
It's taking too long with an operation or cycle.	Cold water is being supplied.	Check that the water supply line is connected to a hot water supply. (Additional time is required to heat cold water.)
Leaves glasses with a dim polish.	The water supplied is soft and too much detergent was used.	Underload the dishwasher and use a rinse aid to minimize this.
	Aluminum dishes were included in the wash load.	Remove the marks on the dishes using a low sensitivity cleaner.
Leaves a yellow or brown film on the inside of the dishwasher.	This is caused by coffee and tea soils.	Remove the soils using a spot cleaner.
Does not dry dishes well.	There is no rinse aid in the dispenser.	Check the dispenser and add the rinse aid. Use the liquid type rinse aid.
	The temperature of the water is low when the dishwasher is running.	Connect the water supply line to a hot water supply. Use rinse aid with the Sanitize option.
	Too many dishes have been loaded.	Proper loading of items can affect drying. Load your dishes as recommended.
	Glasses and cups with concave bottoms hold water. This water may spill onto other items when unloading.	After finishing the cycle, empty the lower rack first and then the upper rack, this will avoid water dripping from the upper rack onto the dishes in the lower rack.
Has a bad odor.	There is water left over when the last cycle is not completed.	Insert detergent without loading dishes, and run the Normal cycle to clean the dishwasher.
	Drain Hose is obstructed.	Contact a qualified service technician to remove any obstruction from the drain hose.
	The dishwasher is not used daily or Soiled dishes left in unit too long.	With the dishwasher empty and no detergent, place a glass with 8 ounces of vinegar upright into the lower rack, and then run a Normal cycle.

Trouble Shooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
Is too noisy.	Sound is generated when the dispenser cover is open and the drain pump is operating in an early stage.	This is normal operation.
	The dishwasher is not level.	Ensure the dishwasher is level.
	Foreign material(Screw, Plastic piece) is in pump chamber.	Contact a qualified service technician to remove foreign material from the pump chamber.
	There is a ‘chopping’ sound because a nozzle is bumping against the dishes.	Rearrange the dishes.
Does not have a smoothly rotating nozzle.	The nozzle hole is clogged with food particles.	Clean the nozzle hole.
	The nozzle is blocked to rotate by any of the dishes.	After placing the dishes into the racks, rotate the nozzles by hand to check whether any of the dishes will interfere with them.
Water won't pump out of the dishwasher.	Drain is clogged.	Contact a qualified service technician to remove any obstruction from the drain hose and check the drain pump operation.
Has a bent upper rack after loading dishes.	The dishes are not loaded properly.	Load your dishes as recommended.
Sanitize is selected when power turns on.	When Power turn on, Sanitize option is selected by itself.	Sanitize option has self-memorization function. When Previouse cycle is run with Sanitize option, dishwasher memory it and selected when power turns On.
Delay start is not operated.	When select delay start option, dishwasher is operated at once.	This is normal operation. Prevent to harden the food remains, run the rinse portion for a few minute. After then, dishwasher wait for selected hours.

Checkpoints after service request

1 Check the safety device

Check the operation of the door lock switch. Make sure that it is locked while the dishwasher is running and that it is unlocked when the dishwasher stops.

2. Use authenticated parts only

If any part is not authenticated, replace it with an authenticated part.

3. Handling wires

Check if any wires are loose or too tight, if they are connected correctly, if they are well bound with tape, and if they are properly clamped.

4. The state of screws and nuts

Check if the screws and nuts are fastened correctly.

Check whether they are fastened with the specified torque.

5. Remove foreign material

Check whether any foreign material such as soil, wire scraps and screws are in the dishwasher. (Check whether any foreign material is entering through the sump into the disposer.)

6. Check for water leakage

Check whether there is water leakage from the hose connector, door, case sump (drain motor, circulation motor, heater, thermistor, turbidity sensor, distributor motor), and the water supply/drain hoses.

7. Check the power cable

Check if there is any damage to the power cable or power outlet. Check that the power capacity is appropriate.

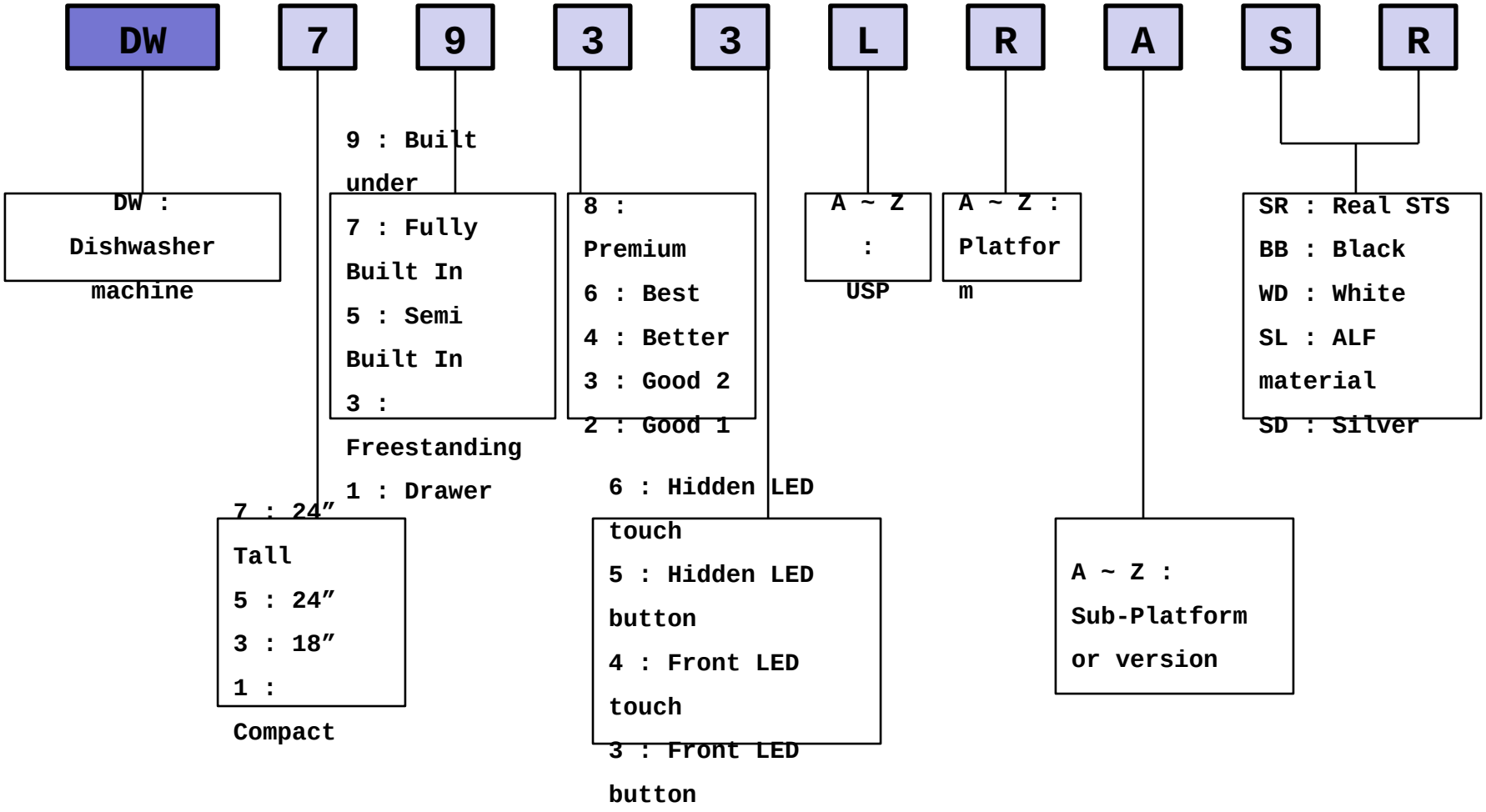
8. Check leveling

Check whether the dishwasher is level.

9. Check the installation location

Check whether the installation location is flat and stable.

Model Number Naming Rules



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Thanks